

ABSTRACT

In the memory cell array of a semiconductor memory the memory elements or memory cells with a magnetoresistive effect can have a hard-magnetic memory layer and
5 a soft-magnetic sensor layer. The magnetization axis of the hard-magnetic layer lies parallel to the line connected thereto, and the magnetization axis lies parallel to the line connected thereto. By an AC voltage or AC current source, a voltage or current signal is impressed on a respective selected line. The magnetization direction of the soft-magnetic layer is sinusoidally deflected from the easy magnetization axis. In addition to the
10 impressed signal, the magnetoresistive resistance of the memory cell also changes as a result. Depending on the magnetization direction of the hard-magnetic layer, the signal is modulated in-phase or in-antiphase by the variable resistance. The sign supplies the memory information.